EXPRESS MAIL LABEL NO. EL746147267US

CLAIMS

1. A method comprising the steps of:

receiving a dataset, comprising a set of data elements with corresponding data values, from a source data system;

translating the dataset from a source schema to a target schema, each schema comprising a set of data elements and a set of relationships among the data elements, according to a set of mapping rules, each rule comprising a type and instructions for obtaining one or more target data element values as a function of one or more source data element values, the type containing all the information about relationships among data elements used by the function;

queuing the translated dataset in persistent storage; and

sending the translated dataset from the persistent storage to a destination data system.

2. The method of claim 1, wherein the step of queuing comprises the steps of :

assigning a key to each new request; and

storing a translated dataset in persistent memory.

3. The method of claim 1, wherein the dataset comprises an XML document.

4. The method of claim 1, wherein the instructions of each mapping rule comprise a computer program.

5. The method of claim 4, wherein the computer program comprises a Java program.

6. The method of claim 5, wherein the computer program refers only methods of the Java String class.

7. The method of claim 1, further comprising the steps of:

waiting a set period of time to receive an ACK from the destination system;

retrying to send translated dataset to destination system a set number of times;

signaling an error if ACK is not received; and

upon receipt of ACK, removing translated dataset from persistent memory.

8. The method of claim 1, wherein there are a finite number of prespecified rule types that are defined generally for XML documents.

9. The method of claim 8, wherein the finite number is three and the three types are:

a first type restricting the function to one target data element that is restricted from repeating in the target dataset by the relationships of the target schema and to any number of source data elements that are restricted from repeating in the source dataset by the relationships of the source schema;

a second type restricting the function to one instance of a group comprising multiple data elements that are restricted to repeat as a group by the relationships of the target schema and to any number of source data elements that are restricted from repeating in the source dataset by the relationships of the source schema; and

a third type restricting the function to a first number of instances of a group comprising multiple data elements that are restricted to repeat as a group by the relationships of the target schema, a second number of instances of a group comprising multiple data elements that are restricted to repeat as a group by the relationships of the source schema, and any number of source data elements that are restricted from repeating in the source dataset by the relationships of the source schema, the first and second numbers being equal.

10. A method comprising the steps of:

scanning a database for outgoing requests;

converting source dataset to a neutral dataset according to a source schema; and

sending the translated dataset to a destination via a network interface.

11. The method of claim 10, wherein the neutral dataset is an XML document.

12. The method of claim 11, wherein the source dataset is an SQL result-set.

13. The method of claim 10, wherein the step of converting is performed according to a computer program that takes as input the dataset to be converted and a preset file derived from a database schema so that when the database schema changes, the computer program can be run on the modified file to accommodate the change.

14. A method comprising the steps of:

receiving a neutral dataset;

translating the neutral dataset to a first destination dataset according to a destination schema;

if the neutral dataset has certain specified data values, reading from the destination database a second destination dataset;

modifying the first destination dataset according to information in the second destination dataset;

transmitting the first destination dataset to the destination database; and

acknowledging a successful transmission of the destination dataset.

15. The method of claim 14, wherein the neutral dataset is an XML document.

16. The method of claim 14, wherein the step of modifying the first destination dataset includes the operation of replacing null data values in the first destination dataset with corresponding data values from the second destination dataset, the correspondence being prespecified.

17. The method of claim 16, wherein the step of modifying the first destination dataset includes the operation of replacing null data values in the first destination dataset with prespecified constant data values.

18. The method of claim 14, wherein the steps of translating, reading, modifying, and transmitting are performed according to a computer program that takes as input the dataset to be converted and a preset file derived from a database schema so that when the database schema changes, the computer program can be run on the modified file to accommodate the change.

19. A system comprising:

a central bridge component that transforms XML documents into XML documents, and

a plurality of application specific gateway components, communicatively coupled to said bridge component, each gateway transforming XML documents to and from documents in application specific formats.

20. The system of claim 19, wherein the bridge component remembers XML documents that it has transformed by storing them in persistent storage and the gateways keep their work in volatile storage, thereby improving the performance of the gateways relative to the performance of the bridge.

21. The system of claim 19, wherein the bridge component provides a web administrative interface communicatively accessible by means of a browser.

22. The system of claim 19, wherein the bridge transforms XML documents according to a set of mapping rules.

23. The system of claim 22, wherein the each mapping rule comprises a type and instructions for obtaining one or more target data element values as a function of one or more source data element values, the type containing all the information about relationships among data elements used by the function.

24. The system of claim 23, wherein the instructions of each mapping rule comprise a computer program.

25. The system of claim 24, wherein the computer program comprises a Java program.

26. The system of claim 19, wherein the XML bridge comprises:

a set of mapping rules;

an XML to XML translator, communicatively coupled to said mapping rules;

an XML parser, communicatively coupled to said XML to XML translator;

a gateway interface, communicatively coupled to said XML to XML translator and to said XML parser; and

a persistent memory device, communicatively coupled to said XML to XML translator.

27. The system of claim 19, wherein application specific gateway comprises:

a database interface;

an SQL to XML translator, communicatively coupled to said database interface;

a bridge interface; communicatively coupled to said SQL to XML translator; and

an XML to SQL translator, communicatively coupled to said database interface and said bridge interface.

28. A computer readable medium including computer instructions for driving an XML bridge, the computer instructions comprising instructions for:

receiving a dataset, comprising a set of data elements with corresponding data values, from a source data system;

translating the dataset from a source schema to a target schema, each schema comprising a set of data elements and a set of relationships among the data elements, according to a set of mapping rules, each rule comprising a type and instructions for obtaining one or more target data element values as a function of one or more source data element values, the type containing all the information about relationships among data elements used by the function;

queuing the translated dataset in persistent storage; and

sending the translated dataset from the persistent storage to a destination data system.

29. The computer readable medium of claim 28, further including computer instructions wherein the queuing step comprises:

assigning a key to each new request; and

storing translated dataset in persistent memory.

30. The computer readable medium of claim 28, further including computer instructions for:

waiting a set period of time to receive an ACK from the destination system;

retrying to send translated dataset to destination system a set number of times;

signaling an error if an ACK is not received; and

upon receipt of an ACK, removing translated dataset from persistent memory.

31. A computer readable medium including computer instructions for driving an application specific gateway, the computer instructions comprising instructions for:

scanning a database for outgoing requests;

converting source dataset to a neutral dataset according to source schema; and

sending the translated dataset to a destination via a network interface.

32. A computer readable medium including computer instructions for driving an application specific gateway, the computer instructions comprising instructions for:

receiving a neutral dataset;

translating the neutral dataset to a first destination dataset according to a destination schema;

if the neutral dataset has certain specified data values, reading from the destination database a second destination dataset;

modifying the first destination dataset according to information in the second destination dataset;

transmitting the first destination dataset to the destination database; and

acknowledging a successful transmission of the destination dataset.